

Table S1 Significant alterations in the expression level of mRNAs with a fold-change ≥ 2 and an adjusted p-value ≤ 0.025 for whole sediment and sediment extract treatments. Fold changes are listed for the corresponding gene names. A (green background) marks genes encoding proteins mainly with hydrolase activity. B (purple background) marks genes encoding enzymes related to xenobiotic metabolism. C (red background) marks genes encoding proteins related to DNA damage response or to DNA/mRNA binding. Investigated were whole sediments and sediment extracts from the sampling sites Sigmaringen (Sig), Ehingen (Ehi) as well as the tributary Lauchert (Lau) along the Danube River in Germany.

Name or orthologous (ensembl genname)	GenBank ID	Sediment				Extract			Process control
		Lau sediment	Sig sediment	Ehi sediment	Silica dust	Lau extract	Sig extract	Ehi extract	
		300 mg/ml	300 mg/ml	37.5 mg/ml	600 mg/ml	30 mg SEQ/ml	10 mg SEQ/ml	10 mg SEQ/ml	
Antioxidant									
Similar to natural killer cell enhancing factor (zgc:110343)	BI980610	-	-	-	-	2.3	2.0	1.7 ^b	-
Hydrolase activity									
Amylase, alpha 2A; pancreatic (<i>amy2a</i>)	BM103972	-	-	-	-	-4.2	-2.9	-1.7 ^b	-1.8 ^b
Similar to elastase 1 precursor (B8JM76_DANRE)	BM154197	-	-	-	-	-3.2	-	-	-
Elastase 2 (<i>ela2</i>)	BI705588	-	-	-	-	-7.9	-3.7	-1.7 ^b	-
Elastase 2 like (<i>ela2l</i>)	AW174168	1.8 ^b	-	-	-	-7.6	-3.6	-1.9 ^b	-2.2
Elastase 3 like (<i>ela3l</i>)	AI558632	-	-	-	-	-4.9	-3.1	-1.7 ^b	-1.9 ^b
Carboxypeptidase A4 (<i>cpa4</i>)	AI496860	-	-	-	-	-2.8	-2.1	-	-
Carboxypeptidase A5 (<i>cpa5</i>)	AF376130	-	-	-	-	-2.7	-2.0	-	-
Cathepsin K (<i>ctsk</i>)	AI384696	-	-	2.4	-	-	-	-	-
Cationic trypsin-3 (<i>try</i>)	AJ297822	-	-	-	-	-3.0	-2.1	-	-
Similar to chymotrypsinogen 2	BM101561	-	-	-	-	-3.2	-	-	-
Similar to trypsinogen	BM184009	-	-	-	-	-3.5	-2.0	-	-
Lipid metabolism									
Carboxyl ester lipase (<i>cel.1</i>)	AF003943	-	-	-	-	-3.6	-2.0	-	-
Similar to apolipoprotein D (LOC100148022)	BM101644	-	-	-	-	-3.0	-2.1	-	-
Oxidoreductase activity									
Cytochrome P450 1A (<i>cyp1a</i>)	AF057713	3.0	5.1	5.2	-	43.3	44.0	21.2	-
CytochromeP4501C1(<i>cyp1c1</i>)	BG738243	1.9 ^c	2.0	2.7 ^a	-	13.6	10.5	4.7	-
Glutathione S-transferase pi	AF285098	-	-	-	-	2.4	2.2	2.2	-
Similar to sulfotransferase	AI959735	-	-	-	-	-	-	3.8	-
Involved in cytokinesis									
Protein regulator of cytokinesis 1 (zgc:55664)	BG304231	-	-	-	-	2.3	-	-	-
Suppressor of cytokine signaling 3 (<i>socs3a</i>)	BI878700	2.5	2.6	2.1	-	-	-	-	-
Regulator of innate immunity									
Dual specificity phosphatase 1 (<i>dusp1</i>)	BI888604	2.1	-	-	-	-	-	-	-
Structural molecule									
Similar to keratin	BE200701	-	-	-	-	-2.1	-	-	-
Keratin 15 (<i>krt15</i>)	AI397347	-	-	-	-	-3.3	-3.0	-2.4	-
Type I cytokeratin	AF197880	-	-	-	-	-2.0	-	-	-

Name or orthologous (ensemble gencode)	GenBank ID	Whole sediment samples				Extract samples			Process control
		Lau sediment	Sig sediment	Ehi sediment	Silica dust	Lau extract	Sig extract	Ehi extract	
		300 mg/ml	300 mg/ml	37.5 mg/ml	600 mg/ml	30 mg SEQ/ml	10 mg SEQ/ml	10 mg SEQ/ml	
DNA damage response									
B-cell translocation gene 2 (<i>btg2</i>)	AB036784	2.8	2.1 ^a	-	-	-	-	-	-
DNA/mRNA binding									
mRNA-decapping enzyme 1A (<i>dcp1a</i>)	AJ344448	2.1	-	-	-	-	-	-	-
TSC22 domain family protein 3 (<i>tsc22d3</i>)	AW018476	2.2	-	-	-	-	-	-	-
Distal-less homeobox protein 3b (<i>dlx3b</i>)	X65060	2.2	2.1 ^a	-	-	-	-	-	-
CCAAT/enhancer binding protein beta (<i>cebpb</i>)	AW019436	2.0	2.1	2.0	-	-	-	-	-
Similar to CCCH zinc finger protein (hypothetical protein LOC564559; zgc:162730)	BM184163	2.1	-	-	-	-	-	-	C
Jun dimerization protein 2	BI326453	4.7	4.0	4.4 ^a	-	-	-	-	-
Kruppel-like factor 2a (<i>klf2a</i>)	AF392992	-	2.0	2.0	-	-	-	-	-
Kruppel-like factor 2b (<i>klf2b</i>)	AF392995	-	2.1	2.6	-	-	-	-	-
Similar to nuclear receptor (<i>nr0b2</i>)	BI892036	-	-	2.0	-	-	-	-	-
Nuclear receptor subfamily 1 group D member 1 (<i>nr1d1</i>)	BM024131	2.1	-	2.2	-	-	-	-	-1.8 ^b
Transcription factor (<i>sp9</i>)	BI979064	-	-	-	-	2.1	-	-	-
Similar to Transcription factor CP2-like 4 (si:dkey-22114.7)	AI477969	-	-	-	-	2.4 ^a	2.1	-	-
Miscellaneous									
Annexin A1b (<i>anxa1b</i>)	AI331515	-4.3	-2.6	-5.3	-	-	-	-	-
Cation transport regulator-like protein 1 (<i>chac 1</i>)	BI888548	2.1	-	-	-	-	-	-	-
Prostaglandin-endoperoxide synthase 2a (<i>ptgs2a</i>)	AW077995	2.7	2.0 ^a	2.0 ^a	-	-	-	-	-
Protein disulfide isomerase family A, member 2 (<i>pdia 2</i>)	AW154400	-	-	-	-	-2.5	-	-	-
Interleukin 11 receptor, alpha (<i>ill1ra</i>)	AW154333	2.3	-	-	-	-	-	-	-
Coenzyme Q-binding protein COQ10 homolog (zgc:73324)	BI880133	2.2	-	-	-	-	-	-	-
Secreted class III semaphorin (<i>sema3d</i>)	AF124485	2.2	-	-	-	-	-	-	-
Similar to estrogen-responsive B box protein (LOC767638, zgc: 153258)	BI878269	-	-	-	-	2.4	2.1	-	-
Nucleoside phosphorylase (<i>np</i>)	AW019173	2.5	-	2.5	-	-	-	-	-
Unknown	AA566708	-	-	-	-	-6.9	-3.0	-	-
Unknown	AF112374	2.3 ^a	2.1	-	-	-	-	-	-
Unknown	AI353541	-2.6	-2.9	-3.0	-	-	-	-	-
Unknown	AI353694	2.0	2.4	-	-	2.2	1.8 ^b	-	-
Unknown	AI437134	2.0	-	-	-	-2.1 ^a	-	-	-
Unknown	AL591482	-	-	-	-	2.4	-	-	-
Unknown	AW455027	-	-	-2.8	-	-	-	-	-
Unknown (wu:fk66d05)	BE016163	2.0	-	-	-	-	-	-	-
Unknown	BE557704	2.8	2.7	3.1	-	-	-	-	-
Unknown	BG737292	-	-	-	-	-2.1	-2.0	-	-
Unknown	BI878214	-	-	-5.3	-	2.2 ^a	-	-	-
Unknown	BI474700	-	-	-	-	2.6	-	-	-

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Unknown (LOC556307; zgc:158605)	BM095918	-	-	2.0	-	-	-	-	-
Unknown	BM101698	-	-	-	-	2.6	-	-	-
Unknown LOC568780 (zgc:158343)	BM102743	2.0	-	-	-	-	-	-	-
Unknown (LOC100148860)	BM183152	1.8 ^b	2.4	3.0	-	6.0	5.2	3.5	-
Unknown	BQ618331	-	-	-	-	-	2.0	-	-

^a added fold changes if fold change is ≥ 2.0 and the adjusted p-value ≤ 0.05

^b added fold changes if fold change is ≤ 2.0 but ≥ 1.7 and the adjusted p-value ≤ 0.005

^c added fold change with a fold change ≥ 2.0 and an adjusted p-value of 0.028